

**REMARKS**

Claims 1-31 were pending in this application when the present Final Office Action was mailed (April 26, 2006). In this paper, no claims have been amended or added. Accordingly, claims 1-31 are currently pending.

In the April 26, 2006 Final Office Action, all of the pending claims were rejected. More specifically, the status of the application in light of this Final Office Action is as follows:

(A) Claims 1-31 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement; and

(B) Claims 1-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,893,328 to So ("So").

The undersigned attorney wishes to thank the Examiner for engaging in a telephone interview on July 6, 2006. During the telephone interview, the Examiner and the applicant's representative discussed the claimed subject matter and the cited reference So. The following remarks reflect and expand upon the points discussed during the July 6, 2006 telephone interview. As such, applicant respectfully requests that this paper also constitute applicant's Interview Summary.

A. Response to the Section 112, First Paragraph, Rejections

Claims 1-31 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Examiner stated that "controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate" of claims 1 and 17 is new matter. Applicant respectfully traverses this rejection.

As pointed out during the July 6 telephone interview, support for the above subject matter can be found, for example, at page 9, paragraph 26 and 27, page 10, paragraphs 28 and 29, and page 12, paragraph 33 of the specification as filed. For example, the specification as filed discloses that "the rate with which the polishing liquid 160 is disposed at the interface between the polishing pad 114 and the microfeature workpiece 116 can also be used to control the

formation of the gaps 153 in the polishing liquid 160," and "the gap 153 can at least reduce ... material from being removed from the workpiece 116 by direct electropolishing." (Specification at page 10, paragraph 29, page 9, paragraph 26). Further, the specification also discloses other ways to control the formation of the gaps 153. For example, "the depth D of the channel 150 in which the gap 153 is formed can be sized to promote the formation of the gap 153." (Specification at page 10, paragraph 28). Thus, applicant respectfully submits that the specification as filed at least sufficiently discloses how to control formation of the gap in the polishing liquid (e.g., by controlling the rate with which the polishing liquid 160 is disposed) to achieve a desired electropolishing rate (e.g., by reducing the electropolishing rate). As a result, the Section 112, first paragraph rejections of claims 1-31 should be withdrawn.

**B. Response to the Section 103(a) Rejections**

Claims 1-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over So. Applicant respectfully traverses these rejections. For the reasons discussed below, So does not support a *prima facie* case of obviousness of claims 1-31. As a result, the Section 103(a) rejections of these claims should be withdrawn.

Claim 1 is directed to a method for removing material from a microfeature workpiece. The method includes contacting a microfeature workpiece with a polishing surface of a polishing medium and placing the microfeature workpiece in electrical communication with a first electrode and a second electrode. The first and second electrodes are spaced apart from the microfeature workpiece. The method further includes disposing a polishing liquid between the polishing surface and the microfeature workpiece, moving at least one of the microfeature workpiece and the polishing surface relative to the other, and passing an electrical current through the electrodes and the microfeature workpiece to remove material from the microfeature workpiece while the microfeature workpiece contacts the polishing surface. The method further includes passing at least a portion of the polishing liquid through at least one recess in the polishing surface so that a gap in the polishing liquid is formed and located at least partially in the recess between the microfeature workpiece and a surface of the recess facing toward the microfeature workpiece. The method further includes controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate.

So discloses a conductive polishing pad that includes one or more anodes and cathodes formed at or near the polishing surface of the polishing pad (abstract). The polishing pad can include anodes 24 that extend closer to the polishing surface 12 of the pad than both cathodes 26 and insulating elements 32. (Col. 6, lines. 18-21.) The electrode geometry of the polishing pad 10 allows the anodes 24 to contact a metal layer 18 of substrate 16 while allowing for a small space 70 to exist between the cathodes 26 and the metal layer 18. (Col. 6, lines. 24-28.) The space 70 allows electrolytic polishing fluid 20 to flow between the metal layer 18 and cathodes 26. (Col. 6, lines. 29-30.)

So does not support a *prima facie* case of obviousness of claim 1 because So fails to teach or suggest several features of claim 1. For example, So fails to teach or suggest "controlling formation of the gap in a polishing liquid to achieve a desired electropolishing rate." Instead, So discloses controlling the electropolishing rate by changing the applied electrical current density. Even though So shows gaps in the polishing liquid in Figures 2A and 4A, So does not even describe the gaps nor provide any suggestion that the formation of these gaps can be controlled. Instead, So discloses that the small space 70 in Figures 2A and 4A refers to the space between cathodes 26 and metal layer 18. Thus, So's space 70 includes both the polishing liquid and any incidental gap in the polishing liquid between So's cathodes 26 and the metal layer 18. Thus, So's space 70 is not the "gap in the polishing liquid" of claim 1 (emphasis added).

In the April 26, 2006, Final Office Action, the Examiner stated that "the size of [the] gap is [a] function of the flow rate of [the] polishing liquid, and therefore a function of electropolishing rate. As such, it makes applicant's disclosure of 'controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate' obvious." Applicant respectfully disagrees with this statement. Assuming, for the sake of argument, that controlling the flow rate of the polishing liquid is within the knowledge of one skilled in the relevant art, such knowledge still does not teach or suggest controlling formation of the gap in the polishing liquid because the controlled variable is different. Controlling the flow rate of the polishing liquid uses the flow rate as the controlled variable. Thus, controlling the flow rate of the polishing liquid may or may not cause the formation of gaps in the polishing liquid. On the other

hand, controlling formation of the gap in the polishing liquid uses the formation of the gap as the controlled variable. Factors such as the flow rate of the polishing liquid can be adjusted to achieve a desired formation of the gap, but it is the formation of the gap in the polishing liquid that is the controlled variable used to achieve a desired electropolishing rate. Thus, the knowledge of controlling the flow rate of the polishing liquid does not teach or suggest "controlling formation of the gap in the polishing liquid to achieve a desired electropolishing rate."

As a result, So fails to teach or suggest at least one feature of claim 1. Claims 2-16 depended from claim 1 and include additional features. Accordingly, So does not support a *prima facie* case of obviousness with regard to these claims for the reasons discussed above and the additional features of these dependent claims. Claim 17 contains subject matter generally analogous to claim 1. Claims 18-24 depend from claim 17 and include additional features. Accordingly, So does not support a *prima facie* case of obviousness of claims 17-24 for the reasons discussed above and the additional features of these claims.

Claim 25 includes subject matter generally similar to claims 1 and 17. Claim 25 further includes "controlling relative amounts of material removed ... by controlling an amount of the polishing liquid that is ... not disposed directly between the microfeature workpiece and the polishing surface," which is neither taught nor suggested by So. Instead, So discloses disposing a polishing liquid 20 that is directly between the microfeature workpiece 16 and the polishing surface 12 (see e.g., Figures 1-6). Even though So's Figures illustrate incidental formation of gaps in the polishing liquid, So is silent about controlling the amount of polishing liquid that is not directly between the workpiece and the polishing surface (i.e., separated from the workpiece by the gaps) to control the desired electropolishing rate. As a result, So does not support a *prima facie* case of obviousness under Section 103 with regard to claim 25. Claims 26-31 depend from claim 25. Accordingly, the Section 103(a) rejections of these claims should be withdrawn for the foregoing reasons discussed above and for the additional features of these dependent claims.

### C. Conclusion

In view of the foregoing, the claims pending in this application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied references. A Notice of

**RESPONSE UNDER 37 C.F.R. § 1.116**

**EXPEDITED PROCEDURE – Art Unit 1765**

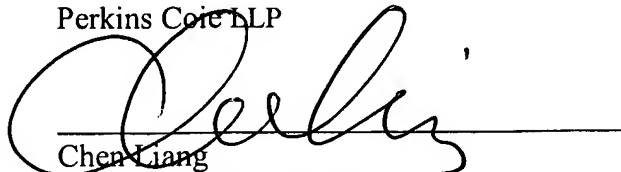
Attorney Docket No. 108298758US

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Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned representative at (206) 359-6038.

Respectfully submitted,

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